

On Stone Implements from the North Western Provinces of India.—By
J. H. RIVETT-CARNAC, Esq., C. S., C.I.E., F.S.A., &c.

(With three Plates.)

The Proceedings of the Asiatic Society for January 1882 contain a short account of a collection of stone implements, made during the past few years by Mr. J. Cockburn and myself in the Banda District of the the North Western Provinces of India.

It is now proposed to describe the collection more in detail, noticing specially what are believed to be the new types brought to light, together with certain specimens which appear to carry with them the explanation of the manner in which they were manufactured and hefted.

The division of labour between Mr. J. Cockburn and myself has been arranged as follows: The larger stone implements, *i. e.*, the hammers, ringstones and the celts of well known types, many of which have been found or collected during my tour, are to be described by me. Mr. Cockburn has undertaken to figure and describe at length, in a separate paper, the very large, varied and most interesting collection of chert implements which he has found, comprising many new types, none of which had been before found in this part of the country, and to which he has devoted the attention of a careful and enthusiastic observer.

The more rare and interesting of the specimens described by me have been carefully drawn to scale, and will be found figured among the illustrations which accompany this paper.

Even to those who have no knowledge of India, the locality of these finds may be easily indicated on the map, by taking as a starting point, Allahabad, the great city at the confluence of the Ganges and the Jumná. For hundreds of miles the huge tract between these rivers, together with the adjoining country beyond, consists of a level plain of alluvial soil containing few trees, beyond the artificially planted groves of the villagers, and no trace of stone save the nodular limestone locally known as kunkur. Some 10 miles to the west of Allahabad, the point where not only the two great rivers meet, but also where the Railway from Bombay and Jabalpur joins the main line of the East Indian Railway, the country suddenly changes, and rock, hill and jungle assert themselves for the first time, extending thence to the south and east for hundreds of miles, through a but little known country towards Katak, and following the Railway line west during its whole course, to within a short distance of Bombay itself.

The Banda District is situated on the eastern boundary of this tract, and is entered by the Railway about twelve miles after leaving Allahabad.

In nearly all its characteristics, Banda differs from its sister Districts of the Doab. The country is hilly and well wooded, and the monotonous level of the plain is exchanged for pleasant valleys and picturesque upland.

The rocks most commonly met with, are the Kaimúr Sandstones, granatoid gneiss, diorite, the hornblendic rock, of which the celts later to be noticed, are chiefly formed, and the basalt of the trap sheet of the Deccan, veins of which intrude themselves here and there among the more common formations. In the south of the district the lower Vindhian formation, known as the Tirhowan Limestone, is met with. This is the matrix of the chert nodules and bands, the material used for the smaller and more delicate implements, the description of which will be found in Mr. Cockburn's paper.

This wild and picturesque country, lying within easy reach of that old established centre of Aryan civilization, Prayág, the "Sangam" or sacred junction of the two holy streams, having been familiar to the Hindús for many centuries, has enjoyed great popularity, and has been invested with a full share of romance by the Aryan invaders, whose appreciation of the picturesque nooks and cool retreats of the upland, must have been enhanced by a long and tedious progress through the monotonous plains of Upper India. It was in the Banda District that Ráma, having resigned his kingdom in filial deference to his father's vow, and accompanied by Sítá, and his brother Lakshman, took up his abode, choosing the wild forest which then covered the hill of Chitrakút, or Kámadagiri, or "abode of delight," a site now marked by hundreds of temples, the annual resort of hundreds of thousands of pilgrims. Some of the most beautiful passages of the Rámáyan describe the picturesque forest, and this pleasant country among the Banda hills, into which civilization has not even yet fully penetrated or robbed of its many sylvan attractions. It was in this forest that Sítá was carried off by Rávana, and it was here that Ráma undertook the avenging expedition against Lanka, during which, as tradition has it, he received valuable assistance from the monkeys of the forest, or in other words from the wild tribes inhabiting this tract, who were probably armed with the stone hatchets and the stone clubs which form the subject of the present paper.

The hill country of which Banda forms the eastern limit, still contains semicivilized tribes, differing in their language, in their physical and other characteristics from the Aryans of the plains. The old Hindú records contain accounts of these wild men of the woods, and the ancient stone carvings, occasionally found among the ruined temples of the forest, or on Buddhist topes like Sanchi, represent a class easily distinguishable in form and feature from the Aryan invaders. A carving found by Mr. Cockburn at Kálanjar, evidently of great antiquity, represents a figure holding in the

right hand an implement which closely resembles a stone celt fixed in a wooden handle. Likewise one of the most interesting of the Sanchi carvings figured by Mr. Fergusson, in his well known work on Tree and Serpent Worship, represents, what is believed to be, a Dasyu with an axe fixed on to the handle by cross bands, in a manner in which it is known this stone implement was hafted. There would then seem reason to believe that the stone implements found in the wild country of Banda are the remains of aboriginal tribes of India, who driven out from the fertile delta, by the wave of invasion from the North, sought refuge in the hills and jungle, in the manner that the aboriginal tribes of Britain are known to have receded to the hilly country of the island before the Saxon and the Dane.

All over the immense jungle tract of Central India, Cromlechs, Kistvaens, stone circles closely resembling those to be found in Britain and on the continent of Europe are to be found. The similarity between the stone implements, now to be described, and those of Europe, is equally remarkable, and there would seem to be little doubt, that these implements were long, and up to a comparatively recent date, in use amongst these tribes, who have as yet made little progress in civilization.

So far as I have yet been able to learn, none of these implements have been found in use at the present day, even among the most backward of these tribes. No one I have met with on my tours had been able to explain the use of any of these implements. They are regarded as wonderful, mysterious, often as holy. Turned up by the plough at some depth below the soil, the celt is supposed to be a thunderbolt, driven deep into the earth from on high, and the finder places it under the village pipul tree, sometimes sanctifying it with a daub of red paint, and constituting it a Mahadeo or Phallus. Stone implements, especially the smaller ones, flakes and arrow-heads, have been found by European officers on the surface of the soil, or in the beds of streams, and notably by Mr. Cockburn, on what would appear to be the sites of old manufactories or encampments. But the village pipul tree is generally the best and surest find. There the villagers, acting unconsciously as valuable coadjutors in the interests of Archæological research, have collected together, and piled up from time immemorial, these curious relics of a bye-gone age, preserving them with that mysterious awe that attaches in their eyes to everything that is old and rare. Save perhaps to what may be the largest and central celt, daubed with red paint, and from its shape worshipped as a Mahádeo, and which they will not part with, the villagers attach no more importance to these implements left there for centuries, than to the other piles of offering stones which surround a jungle shrine. A little good-humoured persuasion, or a few rupees will easily secure them for the collector of antiquarian relics.

Some idea of the abundance of these implements on these shrines may

be formed, from the fact that Mr. Cockburn assisted by the headmen of the village, secured 23 celts in the village of Phuppoondee, Angassie Pergunnah, in about an hour's search. Probably twice this number remained hidden in the great heaps of fragments of sculpture and waterworn pebbles which were not searched.

The number collected by Mr. Cockburn and myself, in this manner, exceeds many hundreds, of all sizes, and of many different types, most of them from the weather-worn condition of the surface, exhibiting undoubted proofs of great age.

In my former papers, read before the Asiatic Society, the practice of objects of antiquarian interest, with which India abounds, being collected and disposed of by amateurs has been strongly condemned. It seems right, therefore, to mention here that no specimens have been kept by either Mr. Cockburn or myself. The best specimens have all been presented to the British Museum, where I am glad to be able to add they have been accepted by the Trustees, and recognised as forming a collection of unusual interest. Casts of the unique specimens have been made for the chief Museums of Europe, America and the Indian Presidency towns, and complete sets have been prepared and presented to these Museums and also to many gentlemen interested in prehistoric research, with a view to comparison with well known European and American types. It is gratifying to notice, that this action has already borne good fruit in the interest that has been awakened in these remains of ancient India, and the Asiatic Society will, I hope, at least consider, that no bad use has been made of this large and varied collection we have been fortunate enough to have made with the assistance and encouragement received from the Society. Several presentations of European prehistoric remains that have been received in exchange have been presented to the India Museum, after having been exhibited before the Society.

HAMMER STONES.

The first specimen to be described (Plate XVIII, fig. 1*a, b*) is a hammer believed to be of a type unique in India. It was found at Alwara 2 miles north of the Jumna, and 37 miles south-west of Allahabad. This village is actually in the Futteh-pore District close to the boundary of Banda. It was found by Mr. Cockburn, placed together with a number of other stones under a sacred tree, and was obligingly given to him, on its nature being explained, by the Thakur who owns the village. It is figured in Plate I. This hammer is of a tough, greyish quartzite and measures 3·50" in length by 2·10" in breadth and 1·80" in thickness. In form, it somewhat resembles a modern hammer, being flat at the ends and slightly curved on the upper surface. A groove ·50" in width and ·15" in depth has been carefully carried

round the centre in a manner which is best shown by the accompanying sketch. The base has been hollowed out with equal care in a gouge like form, to the depth of about $\cdot 13$ of an inch. The whole arrangement suggests that the hammer was attached by a ligature to a wooden or withy handle, the ligature being kept in its place by the upper groove, while the lower groove held the hammer in position on the rounded haft, in a manner somewhat resembling the annexed sketch. Mr. Cockburn has pointed out certain minute marks, especially on the lower groove, which suggest the possibility of metal implements having been used in the fashioning of the hammer, and it may be that this implement belongs to the transition stage from stone to metal, when metal, though available, was scarce. The arrangement for hafting the hammer, closely resembles that described by Dr. C. Rau, in his account of the Archæological collection of the Smithsonian Institution, Washington, U. S. America, a copy of which he has recently been good enough to send me. This description of the manner of hafting the grooved axes, extracted below, applies equally to the handling of the hammer, and figs. 78 and 79 of the Smithsonian catalogue strongly resemble the Indian specimen now described.

“Owing to their frequency these implements may be counted among
“the best known relics of the aborigines and especially in the rural dis-
“tricts of the older states. Indian stone tomahawks are familiar objects.
“In general they can be defined as wedges, encircled by a groove, usually
“nearer the butt end than the edge. The groove served for the reception
“of a withe of proper length which was bent round the stone head till
“both ends met when they were firmly bound together by ligatures of
“hide or some other material. The withe thus formed a convenient han-
“dle.”

The specimen now figured is it, is believed, the first of this description found in India. It is now in the British Museum, casts having been supplied to several of the leading Museums, including the Indian Museum Calcutta.

The collection contains several other grooved hammers of a less perfect form, bearing no trace of metallic tooling. They appear to be water-worn pebbles, which have been grooved to admit of being attached to a withy handle.

The next specimen, Fig. 2, which I take to be a hammer also, is quite unlike any of those figured in the Catalogues of the European and American Museums that have yet reached me, though it is approached by a Scandinavian hammer, to be noticed later, and is of a type not hitherto found in India. It is a cubical mass of basalt measuring $2\cdot 50''$ each way. On each of its six sides is a hole or depression about $1''$ in diameter and $\cdot 25''$ in depth. The whole form is not unlike an astragalus, or die of the ancients, and will

best be explained by fig. 2. The implement fits conveniently into the hand, the depressions affording a hold for the fingers, and suggesting its use as a many-sided hammer, the faces of which were changed from time to time when the pit became inconveniently deep for use. Somewhat similar depressions may be noticed on the iron mauls used by masons in the present day. The hammer, together with two celts, was found in the Banda District, embedded in the roots of a pipal tree, which in the course of years had overgrown them, and the specimens were cut out with some difficulty. "Nilsson's Scandinavia" contains a sketch, Plate I, No. 5, of a many-sided hammer of a somewhat similar form.

A flat red quartzite pebble is figured in No. 3. It measures 4·25" in length by 3" at the widest part, and is only 1·75" thick. The two ends are slightly flattened as shown in the engraving. The upper and lower sides exhibit a double groove or notch for the purpose of securing it to a wooden handle. On the upper and lower surfaces double cup-marks or depressions measuring about ·70" in diameter and nearly ·50" in depth. The cup-mark depressions are not easily accounted for. Mr. Cockburn is inclined to think that they represent the process of forming a complete groove round the stone, which has been left unfinished. To me the design appears complete, and it would seem as if the end had, at one time, been used for hammering, whilst, at some other time, the cup-like depressions had been utilised. Possibly similar implements, found in other parts of the world, may have been already described and explained.

Fig. 4 is a nearly circular piece of sandstone measuring 3·50" in diameter and 2·25" in thickness. The upper and lower portions which were originally flat, show a circular depression 1·60" in diameter and ·50" deep. The sides have been grooved to a depth of ·25 of an inch. This implement may have been used as a hammer, for though now somewhat broken, it fits comfortably enough into the hand. Or, as suggested for stones of a similar type, it may have been a sort of rest or stone anvil, on which flint cores were split and worked. Implements of a somewhat similar description were found by Major Mockler in Baluchistan.

Fig. 5 represents a curiously wrought piece of basalt 3·50" in length and 3" in diameter. It bears the appearance of having been split in two, either by accident or design. A deep but narrow groove runs through the centre, as shown in the sketch. Mr. Cockburn considers it a type of implement resembling the single Bola, or modern slung shot, and supposes the groove to have been intended for the reception of a thong. Mr. Cockburn found a carved figure at Kalinjar, bearing in its hand an implement which he considers resembles that now described. At the back the stone is a small but curious depression, hardly large enough to have been produced by hammering. I am unable to suggest any explanation of its use.

Fig. 6, *a*, *b* of which outline and section are given is a mace-end, or ring stone of a type well known in Europe, and of which several specimens have already been discovered and described in India by Messrs. Ball and others. The specimen in question is of quartzite and measures 5.50" in diameter and 2.50" in thickness. The central hole is 2.30" in diameter. On either surface, towards the centre it narrows, in the manner shown in the section, and characteristic of the working of the implements of this description found both in India and in Europe.

Many examples of the type are to be found figured by Evans and others in their works on stone implements. Perfect specimens in some numbers have been found by Mr. Cockburn and myself, besides a large number of fragments. The perfect specimens are generally found under trees, deposited there together with celts, but numerous fragments have been picked up at the base of hills, on the Kymore plateaux, or in ravines, together with fragments of celts and flint chips and other indications which usually mark the sites of ancient encampments. Large round pebbles with the drilling of the central hole, in a more or less imperfect state, have also been found in considerable numbers, indicating that the process was troublesome and lengthy. Some exhibit a deep cup-mark or depression on either side, others on one side only. They closely resemble the hammer stones found in Europe and America, and figured in the various works on the subject. In many of these cases, it seems doubtful whether it was intended to perforate the stone, which fitted conveniently enough into the hand as a hammer.

Fig. 7 is a four-sided block of diorite 11" in length 2" in breadth and 2" in thickness. At about 3" from the end it has been ground to a rough point. The implement bears all the appearance of having been used as a pick or hoe, and is well adapted for grubbing out roots or digging out holes. I was originally inclined to think that this instrument may have been a stone ploughshare, such as might well have been used in a rude state of culture. The fact of the point being unsymmetrical, and the right side exhibiting a greater amount of wear than the left, favours this idea.

Plate XIX, fig. 8 is a long tapering well rounded piece of diorite, measuring 9.50" in length 2.60" in diameter at the base and 1" at the top. It bears from top to base the marks of the chipping by which it has been worked into its present state. The implement has all the appearance of having been used as a pestle for pounding grain or other substances. It may possibly have been used as a stone club, like those of the Merai of the New Zealanders, but is rather short for such a purpose.

An ill-shaped rough polygonal block of tough sandstone measuring 50" in length by 8" in breadth and 3.25" in thickness will be seen No. XVIII in the collection in Plate XX taken from a photograph. It has not been

separately figured. On the sides it has four depressions or holes of an inch in diameter and .80" in depth. It fits comfortably into the hand, and the projection at the top is convenient for the thumb and forefinger. It would appear to have been used as a hammer in the same manner as fig. 2 in Plate XVIII. The holes seem well adapted for the narrow conical ends of some of the celts, many of which bear the marks of hammering on the narrow end.

Lastly, before passing to the celts, by far the most numerous class in the collection, some curious and mysterious stones, found in considerable numbers and one of which is figured No. 9, have to be briefly noticed. The only suggestion I can make in regard to them is that they had possibly been used as pivots. It is possible that similar stones may have been found in other parts of the world, and that the sketch may be recognized, and the use of the implement explained by some of my correspondents into whose hands copies of this paper will pass.

Some specimens were picked up in situ by Mr. Cockburn about 1 mile north of the fortress of Bijaygarh, on a stony plateau that has yielded fragment of celts and chert implements, by which it might be inferred that they were of considerable antiquity.

CELTS.

Celts similar in form to those of Europe and America have, as already stated, been found by Mr. Cockburn and myself in very large numbers. It is possible that their preservation is partly to be attributed to their form, which admits of their being accepted as representing the Mahadeo or Phal-lus. Many have doubtless been ploughed up, but the rainfall in this up-land country has cut up the soil into innumerable water-courses and ravines, and this together with the constant denudation of the soil has left exposed many implements which would otherwise have long lain hidden beneath the surface. Besides those collected under trees, many celts have been found on the surface of the soil, possibly not far from the positions in which they had originally been lost. Numbers have been picked out of gravel heaps stacked on the sides of roads. Altogether, including those we have purchased from natives, who have been employed in the search, the number of celts collected by us exceeds 400.

The largest of these is 12"·25 in length by 4"·70 in breadth, weighing 8lbs. 3oz. "The smallest is 2"·50 in length by 2"·15 in breadth, and weighs 3 $\frac{3}{4}$ oz." The stone selected for the celts is, in the case of the polished ones, diorite of varying degrees of fineness, in some cases nearly approaching porphyry. A perfectly distinct type, roughly chipped, are of hard black basalt. As a rule while those of the one class are thick and show an ovate section, the basalt celts are comparatively flat. The basalt weathers differently from the diorite. In rare instances celts of polished sandstone have occurred. The great mass of implements of this material are exceedingly rough pro-

ductions, in hard quartzite somewhat resemble Messrs. Bruce and Fooles specimens from Southern India. They have not, however, yet been found in positions which would admit of their being classed as palæolithic types, though it is quite possible that they may be of an older type than the polished celts.

In material, in shape, and in manufacture the polished and chipped celts of the first two classes closely resemble those found in various parts of Europe, America and Australia. This is the verdict of all the Museums to which they have been sent.

The Count de Limur, the distinguished French Antiquarian, assures me in a recent letter, that those sent to him, so closely resemble the celts dug out of the tumuli of Carnac and other parts of Brittany preserved in the Museum of the Hotel de Limur, that had the latter not all been marked, he would not have been able to distinguish the one from the other.

The collection may be considered under the classification adopted by Evans: 1st, The chipped or rough hewn celts. 2nd, The polished celts.

Class I. Rough hewn celts of basalt may be further subdivided into three types (A.) Heart-shaped or cordate, rather an uncommon type, the edge alone highly polished, and so much rounded as to be almost semicircular. In many cases inequalities of the chipping have been partially removed, but in no case has the implement itself been entirely polished. (B.) Lanceolate. Long and comparatively narrow and coming to a point at the end, resembling the arrow-heads termed "leaf-shaped" in European collections. The side edges have the appearance of being serrated, owing to flakes having been taken off alternate sides. (C.) Very flat and almost triangular in shape. Implements of all these types will be observed in Plate XX which is taken from a photograph.

A rough unfinished celt is given in Plate XIX, figure 10. Fig. 11 represents one of the largest, whilst fig. 12 is a selected specimen of the flat triangular type.

The collection includes a broken basalt celt with a well defined shoulder indicating that this class of implement was handled.

One or two small basalt celts with the greater portion of the surface polished have also been found as far south as Dudhí in South Mirzapore. They are about the length of an average forefinger and fit in between the finger and thumb, and resemble in shape and size a jade knife, from the lake dwellings of Constance, which the distinguished Dr. Fischer was recently good enough to send me. The latter specimen is now in the collection of the Indian Museum and may be compared with the Indian types.

Fig. 13 shows an outline drawing of the largest of the polished celts, its length being 12"·25 by 4"·70 in breadth, and the weight 8lbs. 3oz. It is difficult to conceive how it could have been hafted, so huge are its

proportions. The original polish has not preserved it from the effects of the weather, during, perhaps, several hundreds of years, and the stone is corroded and pitted on the surface, the material being fine-grained diorite.

Fig. 14 a polished celt, much weathered is, from its shape, one of the most interesting in the collection. It is 7·5" long by 3·50 broad. On either side is a shallow cup-mark or depression, resembling the depressions of the celts found in Europe. It is remarkable as having two notches about half the distance from the cutting edge. These were evidently made for the purpose of binding it to a handle, and the opposite directions of the planes of the notches indicate that the binding was carried round and round. In Evans' "Stone Implements," p. 9, a similar celt from India is noticed as being in the possession of Genl. Pitt-Rivers. The Banda specimen was found in a village about one mile from Kirwee.

The implement illustrated in fig. 15 is a battered and expended celt of a fine-grained diorite, approaching basalt. On either side is a large oval-shaped depression, suggesting that the stone, first used as a celt, was utilized subsequently as a hammer. Evans in his *Ancient Stone Implements of Great Britain*, fig. 207, notices that in England, it is by no means uncommon to find portions of polished celts, which, after the edge has by some means been taken away, have been converted into hammers. The specimen now figured, closely resembles fig. 168 in Evans' volume already noticed.

Fig. 16 is a polished celt of diorite, from Robertsgunge in the Mirzapore District, and differs entirely in shape from the celts already figured. The side view closely resembles fig. 67 of Evans' work, a celt found in the bed of the Thames, London. It has been blunted at the top, and is almost round in section until within an inch and a half from the base, where it expands slightly, as shown in the sketch. From its cylindrical form it more closely resembles a village Mahadeo, and this may account for its having been found on a shrine so far east as Robertsgunge. The habit of preserving celts under trees is not general in the Mirzapore District, although celts must be quite as abundant as in Banda, for Mr. Cockburn and a friend, who searched together, found five in a circuit round Kandakote. Two of these are of a square type not yet obtained in Banda.

The collection comprises several long chisel-shaped celts and a vast number of tiny immature implements of the same shape as the larger celts figured. The latter may either have been hafted or used between the fore-finger and thumb. The diorite when ground and polished takes and preserves, under rough usage, a perfect edge. One of the smaller ones that has been fixed into a handle of staghorn, after the manner of those found in the Swiss Lake dwellings, has been sharpened, and I can testify from experience, chops wood nearly as efficiently as a small iron axe.

The subject will be continued in a later number of the Journal.

